

### Remarks

Claims 1-14 are pending in the application. Claims 1-3 and 8 have been amended and claims 13-14 have been canceled herein.

Favorable reconsideration of the application is respectfully requested in view of the following comments.

#### ***I. REJECTION OF CLAIMS 1-14***

Claims 1-4, 6-11 and 13-14 stand rejected under 35 U.S.C. §102(b) based on U.S. Patent No. 5,973,374 issued to *Longcor* (hereinafter *Longcor*), and claims 5 and 12 stand rejected under 35 U.S.C. §103(a) based on *Longcor*. Claims 13-14 have been canceled herein and, therefore, the rejection of claims 13-14 has become moot. Withdrawal of the rejection of claims 1-12 is respectfully requested for at least the following reasons.

##### **a. Claims 1-7**

Claim 1 has been amended to further recite that the contact hole is dimensioned along the major axis so as to maintain focus of an image of the contact hole as the minor axis is reduced in size towards a depth of focus (DOF) limit. Support for this amendment can be found, for example, on page 6, line 25 - page 7, line 12 of the present application.

*Longcor* relates to a flash memory array, wherein contact locations between  $V_{ss}$  metal common source lines and source bus regions are used to provide additional contacts between  $V_{ss}$  metal lines and p+ well taps.<sup>1</sup> More specifically, *Longcor* is concerned with increasing the available contact area, either by adding additional contacts or by enlarging existing contacts, so as to permit connecting the  $V_{ss}$  metal lines to the p+ well taps.

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<sup>1</sup> Column 6, lines 46-49 of *Longcor*

For example, *Longcor* discloses that the p+ well tap may be connected to the  $V_{ss}$  metal common source through: 1) separate contact metals; 2) a common enlarged contact; or 3) a common contact metal and a silicide layer.<sup>2</sup> Separate contact metals, increased contact size and a common contact tied to a silicide layer each produce a common effect, which is an increase in contact area. Thus, *Longcor* is concerned with increasing the available contact area so as to provide a means to connect the p+ well taps to the  $V_{ss}$  metal lines.

More specifically, and with respect to Fig. 7A and 7B, *Longcor* discloses that the contact hole 116 occupies a larger area than a prior art contact hole. As described above, this increase in size is utilized to increase the contact area, thereby permitting a p+ well tap connection to the  $V_{ss}$  to source-bus contact area.<sup>3</sup> *Longcor*, however, does not teach or suggest that the major axis of the contact hole is dimensioned so as to maintain focus of an image of the contact hole as the minor axis of the contact hole is reduced in size towards a DOF limit. *Longcor* does not even address the DOF limit. Thus, *Longcor* does not anticipate amended claim 1.

Furthermore, since *Longcor* relates to increasing the available contact area in order to permit connecting p+ well taps to  $V_{ss}$  metal lines, one skilled in the art would not be motivated to utilize the teachings of *Longcor* to dimension a contact hole along the major axis so as to maintain an image of the contact hole in focus as the minor axis is reduced in size. Thus, the present invention is not obvious in view of *Longcor*.

Accordingly, withdrawal of the rejection of claim 1 is respectfully requested.

Claims 2-7 depend from claim 1 and therefore can be distinguished from *Longcor* for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 2-7 is respectfully requested.

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<sup>2</sup> Column 6, lines 51-62 of *Longcor*

<sup>3</sup> Column 8, lines 46-50 of *Longcor*

**b. Claims 8-12**

Claim 8 has been amended to include the subject matter of original claim 13, and recites a flash memory device that includes a contact formed between a first stacked gate layer of a plurality of stacked gate layers and a second stacked gate layer of the plurality of stacked gate layers, wherein the contact is formed in an elliptical shape.

The Examiner contends that *Longcor* discloses the above limitations, and cites to Figs. 7A and 7B of *Longcor*. The Applicants respectfully disagree with the Examiner for at least the following reasons.

Initially, Applicants note that the Examiner has not shown that *Longcor* teaches or suggests the limitations of original claim 13. The Examiner merely repeats the limitations of original claim 13 (which has been incorporated into amended claim 8), without indicating where in *Longcor* the particular limitations can be found.<sup>4</sup>

Referring now to Fig. 7A of *Longcor* (reproduced at right), a layout representation of a flash memory array is shown. The flash memory array includes a contact plug 116, which has a rectangular shape. Additionally, several square shape objects (not labeled) are shown, which appear to be connections to areas of the flash memory cell. However, these objects are not discussed in *Longcor*, and no other contact holes are shown in Fig. 7A. Thus, Fig. 7A does not disclose a flash memory device that includes an elliptical shape contact, as recited in amended claim 8.

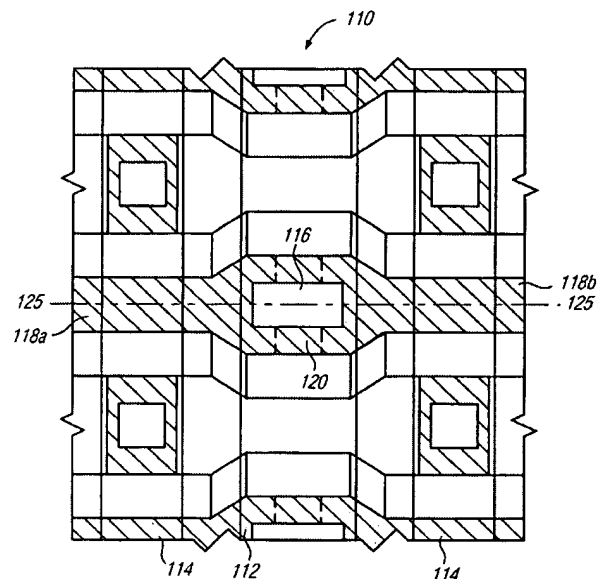


FIG. 7A

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<sup>4</sup> See page 7, line 3 of the Office Action

Fig. 7B of *Longcor* is a cross sectional view of Fig. 7A and does not provide additional detail with respect to the contact shape. Thus, Fig. 7B does not disclose a flash memory device that includes an elliptical shape contact, as recited in amended claim 8.

Moreover, nowhere has it been shown that the specification of *Longcor* discloses a contact plug 116 that is elliptical in shape. *Longcor* does not teach or suggest a flash memory device that includes a contact formed between a first stacked gate layer of the plurality of stacked gate layers and a second stacked gate layer of the plurality of stacked gate layers, wherein the contact is formed in an elliptical shape, as recited in claim 8.

Thus, *Longcor* does not teach or suggest all the limitations of independent claim 8 and, therefore, the rejection under 35 U.S.C. 102(b) is improper. Accordingly, withdrawal of the rejection of claim 8 is respectfully requested.

Claims 9-12 depend from claim 8 and therefore can be distinguished from *Longcor* for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 9-12 is respectfully requested.

## **II. CONCLUSION**

Accordingly, claims 1-12 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Serial No. 10/654,739

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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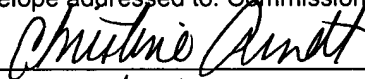
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6/14/2004

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